

# Pressure Gauges for Refrigeration Systems



For the special application of pressure measuring in refrigeration systems there is a variety of pressure gauges, which are specially modified for this purpose. Here we will give you an idea of the characteristic properties, which are not described in our catalogue data sheets.

**The pressure-media in these systems are separated in Germany acc. BGV D4 in following groups:**

**Group 1:** Non-flammable media without damage to human health.

**Group 2:** Poisonous or etching media or such which may cause an explosive atmosphere at a concentration in air of at least 3,5 vol.-%.

**Gruppe 3:** Wie 2, jedoch Explosionsgrenze unter 3,5 Vol.-%.

Refrigerant		
Group 1	Group 2	Group 3
R11 Trichlorfluormethane	R30	R170 Ethan
R12B1 Chlordifluorbrommethane	Dichlormethane	R290 Propane
R13 Chlortrifluormethane	R40 Chlormethane	R600 n-Butane
R13B1 Bromchlortrifluormethane	R123	R1150 Ethylene
R23 Trifluormethane	Dichlorfluorethane	R1270 Propene
R113 Trichlorfluorethane	R160 Chlorethane	
R114 Dichlortetrafluorethane	R611 Methylformiat	
R134a Tetrafluorethane	R717 NH <sub>3</sub>	
R500 Mixture (R12/R152a)	R764 Sulfurdioxid	
R503 Mixture (R23/R13)	R1130 Dichlorethene	
R744 CO <sub>2</sub>		
In conversion:		
R12 Dichlorfluoromethane		
R22 Chlordifluormethane		
R502 Mixture (R22/R115)		

**We recommend acc. the VBG pressure gauges with a safety-case:**

Media of group 1+2 Gauges with safety-case acc. EN 837-1, S2 (former DIN 16007)

Media of group 3 Gauges with safety-case acc. EN 837-1, S3 (former DIN 16006)

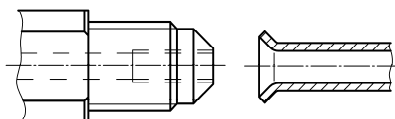
These are our series RCh/RChG 63/100 with blow-out and safety-glass-lens acc. data-sheet 1211/1201 for grade S2 resp. model RSCh/RSChG with solid front/blow-out back acc. data-sheet 1610/1600 for grade S3. The technical features of these gauges can be read in the a.m. data-sheet.

There are also new developed media or mixtures, as R404A or R407C, which have not yet been integrated in the VBG, we recommend at least application of safety-case acc. S2 here also.

## Connection thread for refrigerant-gauges

The process-connection of the gauge is available as the standard-thread 1/4" or 1/2" bsp ( NPT also available). Specially designed for refrigeration systems is the connection 1/4 flare, see sketch below. We apply brass/bronze wetted parts for most media, for ammonia (R717) the pressure-gauge is manufactured completely of copper-free materials (SS internals).

Thread 7/16"-20 UNF with sealing cone for non-soldering connection  
acc. DIN 3866 for 6 mm tubes  
1/4" flare



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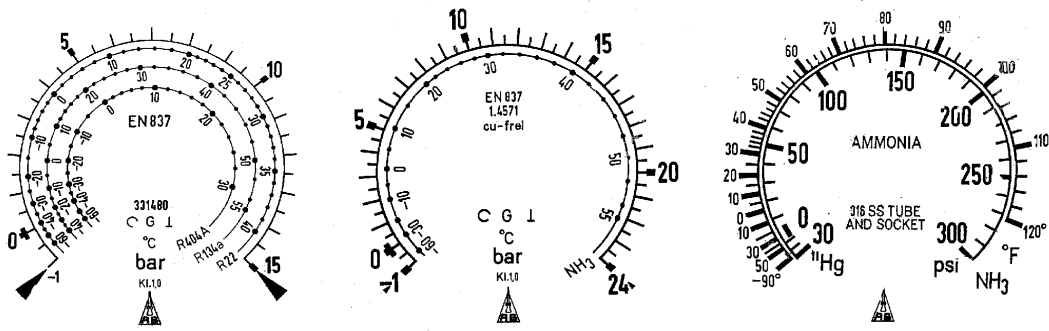
## Dials for refrigerant gauges

Common ranges for refrigerants:

Range	Refrigerant:	
	Ammonia	others
-1-0-15 bar	NH <sub>3</sub>	Multiple dial acc. Application
-1-0-24 bar	NH <sub>3</sub>	Dto.
-1-0-30 bar	NH <sub>3</sub>	Dto.

The most obvious modification of a pressure gauge for a refrigerating system is the dial, which is printed as a dual scale dial for pressure and temperature: pressure-scale in bar, psi or kPa/MPa and temperature-scale in °C or °F acc. the characteristic vapour-pressure-diagram of the referring media. The temperature-scales are printed in colour and are designed acc. the DIN 16112. The dial may show combined scales for several media, please see samples below for DIN-scales left side and middle, the right side shows a sample for the US-market in psi/°F

Samples of pressure/temperature dials



## Cases of refrigerant gauges

Upon request the case of the pressure-gauge may be painted in a colour referring to the media, to show the gauge is belonging to a certain media circuit resp. make easy visualization of the installation possible. Common colours are red for high pressure circuit and blue for low pressure circuit.

